

1928.
NEW ZEALAND.

MANDATED TERRITORY OF
WESTERN SAMOA.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH FOR THE YEAR
ENDED 31st MARCH, 1928.

Presented to both Houses of the General Assembly by Command of His Excellency.

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REPORT.

The ACTING CHIEF MEDICAL OFFICER TO HIS EXCELLENCY THE ADMINISTRATOR.
I HAVE the honour to submit the annual report of the Department of Health for the year ended 31st March, 1928.

ERNEST HUNT,
Acting Chief Medical Officer.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH FOR THE YEAR ENDED 31st
MARCH, 1928.

Early in 1928 the Health Department sustained a great loss by the retirement, through ill health, of Dr. T. Russell Ritchie, for more than four years the Chief Medical Officer for the Territory. It is with great regret that Dr. Ritchie's resignation was accepted by the Government, a regret which is shared by all who knew him and his work. There can be no doubt that the Health Department, and through it the Native population of Western Samoa, owes a very great debt to Dr. Ritchie,

who has been largely instrumental in placing the Department upon its present basis, and only those who really know can appreciate what that means. When one realizes that he is responsible for the establishing of one district hospital at Aleipata—besides fifteen out-stations in the two islands of Upolu and Savai'i, of which the former is staffed by a European Medical Officer with a Native dresser and two trained Native nurses, and the latter by Native medical practitioners or trained nurses, the value of his work can be appreciated. In addition, child welfare has been placed upon a sound basis, and campaigns against hookworm and yaws have resulted in a great reduction in these diseases. The above is but a very brief summary of Dr. Ritchie's work.

PUBLIC HEALTH.

The benefit of the intensive campaigns against hookworm and yaws commenced in the year 1923, is now being felt, and is reflected in the health of the community.

During the past year, apart from a small outbreak of dysentery on the east coast of Savai'i, the health of the inhabitants of the Territory has been exceptional. Such being the case, this should be a record year in regard to natural increase of population, with a diminished death-rate and a correspondingly increased birth-rate. Actual figures, however, do not show such results, there being a decided diminution in the natural increase of population as compared with last year, and this can probably only be accounted for by a deliberate failure to register births and deaths. It is evident that the Native movement known as the "Mau," which has been organized to oppose Government officials and all Government orders and instructions, has operated to prevent registration, this fact becoming very noticeable when the returns for the past six to nine months from certain districts are compared with those of the previous year. This matter will be referred to again under the heading "Vital Statistics." The situation is further complicated by the fact that the activities of the Mau have not ended with a ban on registration of births and deaths, but, unfortunately, they have also caused all the women's committees under the child-welfare scheme to cease to function, and, worse still, owing to their action nearly all sanitary control in the various villages has been lost. This means that a very large proportion of the villages in Upolu and Savai'i have gone back to the conditions existing before sanitation was introduced and enforced by Government officials.

Whilst the activities of the Mau have had no appreciable effect on the attendances at the hospitals and out-stations of both islands from the clinical point of view—the attendance at the main hospital in Apia naturally showing a big increase owing to the large number of Natives assembled in Apia for some months on end—the great setback has been the inability to carry out any supervising work during the year in the shape of medical *malagas* round the islands.

It is probably difficult for non-residents in Western Samoa to appreciate the practical impossibility of trying to reach and treat Natives in their own villages round the islands without their friendly co-operation. Without this co-operation very little can be done, and the result is only a waste of a good deal of time and money, apart from the probability of meeting with personal insult to the European Medical Officers in charge of *malagas*. In spite of the fact that only a very small proportion of taxable Natives have paid their medical taxes for over a year, free treatment has been continued, and no case has so far been refused, a fact which is emphasized by the large numbers treated.

As mentioned above, the attendance at the Apia Hospital has been very large, a considerable portion of those receiving treatment being obviously not supporters of the Government. As in last year's report, Map No. 1 shows the centres at which treatment is available. It has not been found possible to open new out-stations under existing conditions, though it had been planned to place a Native medical practitioner at Falelima, on western end of the south coast of Savai'i, and also a trained nurse on the Island of Manono.

The map accompanying this report shows the centres at which treatment for Natives can be obtained. It will be seen that the population of the two islands, Upolu and Savai'i, is unevenly distributed, that of Upolu being practically double that of Savai'i, and also that the Apia Hospital area caters for about two-thirds of the whole population of Upolu. In the account which follows the numbers refer to districts on the map.

UPOLU—	Area.	Population.	Districts included.
(a) Apia Hospital area		16,963	1, 2, 3, 4, and western portion of 10.
(b) Aleipata Hospital area		5,162	6, 7, 8.
(c) Lefaga-Safata area		2,806	9 and eastern portion of 10.
(d) Fagaloa Bay		817	5.
SAVAI'I—			
(e) Tuasivi Hospital area		6,026	1, 2, 7A, 6B.
(f) Safotu Hospital area		3,699	3A, 3B, 4.
(g) Salailua-Asau area		3,742	5A, 5B, 5C, 6A, 7B.

(a) *Apia Hospital Area*.—This area, which contains 66 per cent. of the population of Upolu, is easily reached by fair motor-roads extending from Mulifanua on the west to Falefa on the east of the north coast. It contains the main hospital at Apia, where there are four European Medical Officers, nine European nurses, two Native medical practitioners, six cadets in training, besides twenty-four Samoan nurses, of whom fifteen are trainees. In addition there are five Samoan cadets at the Suva Memorial Hospital in Fiji undergoing a three-years course of training to become Native medical practitioners. The Apia Hospital is well equipped, being electrically lighted, with an X-ray plant and separate European and Samoan maternity departments. The laboratory is the largest

and best-equipped in the South Pacific, being fitted with "Silverlite" gas for heating purposes, the plant being also used for the sterilizers in the operating-theatre. There are four out-stations—dispensaries—in charge of trained Native nurses in this area—at Lufilufi (the Methodist Mission), Malua (the London Missionary Society's headquarters), Fasito'otai, and Mulifanua. Of these, Malua has been temporarily closed, but is being carried on for the time being by a trained nurse who has married and settled there.

(b) *Aleipata Hospital Area* is still under the charge of a European Medical Officer, who has an interpreter-cadet and two trained Native nurses to assist him. He also makes periodical trips round his district.

(c) *Lefaga-Safata Area* has now three dispensaries in charge of trained Native nurses—at Fusi, Sataua (Lotofaga), and Matautu.

(d) *Fagaloa Bay*, which is very inaccessible, is still in charge of a trained Native nurse.

(e) *Tuasivi Hospital Area* is staffed as Aleipata Hospital, and serves about 45 per cent. of the population of Savai'i, a large amount of work being done from this hospital as a base. A trained Native nurse is in charge of the dispensary at the Methodist Mission at Satupaitea.

(f) *Safotu Hospital*, on the north coast of Savai'i, is still doing good work under the charge of a Native medical practitioner assisted by a Native nurse.

(g) The part of Savai'i from Salailua to Asau is a difficult one to cater for, owing to coastal conditions. At present we have still three dispensaries in the district, each with a trained Native nurse—at Gagaemalae, Samataitai, and Asau. In the near future it is hoped to place a Native medical practitioner at Falelima, which will command the whole of the western end of the island.

Last year a trained Child Welfare nurse was placed at Fagamalo, and so far has done good work. Early in this year another trained Native nurse was sent there to learn from the nurse in charge, and when thought to have sufficient knowledge she will be given another district, so that in time we hope to have Child Welfare nurses on both islands. Unfortunately, through illness, marriage, &c., we have lost five trained Native nurses during 1927, which is a grave handicap, and has necessitated closing three stations for the time being, as it means waiting for some months until present trainees qualify before we can hope to replace those we have lost. No new stations have been opened during the year, due partly to this cause and partly to the political situation.

INFECTIOUS DISEASES.

These returns do not include all cases of infectious diseases occurring in the Territory, but only those notified from Apia Hospital: Dysentery (bacillary), 25; dysentery (amoebic), 1; pneumonia (lobar), 46; pneumonia (bronchial), 8; enteric-fever group, 23; leprosy, 3; pulmonary tuberculosis, 9; tubercular peritonitis, 2; meningitis (T.B. and pneumococcus), 6; gonorrhœa, 1; beriberi, 8; tetanus, 6; puerperal septicæmia, 3.

(1) *Bacillary Dysentery* is endemic in Western Samoa, the cases reported occurring from February to July. There was a small outbreak on the east coast of Savai'i in January and February, 1928, but it soon petered out.

(2) *Influenza*.—Very few cases have been met with during the year.

(3) *Hookworm*.—Only 606 treatments have been given during the year, and no bad cases were met with. It has not been possible to undertake *malagas* for this purpose.

(4) *Yaws*.—The total number of injections given throughout the Territory for the past year is 7,450, regular treatment having been carried out in the Apia Hospital and district, in the Aleipata Hospital area, and along the north coast of Upolu from Mulifanua to Falefa. Tuasivi Hospital district has also had regular treatment, and the rest of Savai'i was attended to on a *malaga* commenced at the end of December, 1927. Very few primary sores are now met with, and the disease is well under control, though naturally it will take some years to stamp it out.

(5) *Leprosy*.—In May, 1927, seven lepers were transferred to Makogai, the Leper Asylum in Fiji, and there are now two cases in hospital awaiting transfer. We have twenty-eight lepers in Fiji at present: Samoans, nine males, six females; Chinese, three males; half-caste Europeans, three males, three females; Solomon-Islanders, three males; Cook-Islander, one male.

QUARANTINE.

During the year eighty-five vessels arrived from overseas, and pratique was granted in every case.

Quarantine Intelligence Service.—As last year, this consists of weekly radios from New Zealand, giving information as to existent epidemic diseases present in that country, and also any valuable information in respect to other parts of the Pacific. In addition, fortnightly messages from London to New Zealand are posted on here, all matters of importance being sent by radio. The Eastern Bureau of the League of Nations Health Organization in Singapore broadcasts returns of epidemic diseases weekly, and these are picked up by the Apia Wireless Station, and they also post the weekly fasciculus regularly. In accordance with the resolutions passed at the International Health Conference held in Melbourne in December, 1926 (at which Western Samoa was represented by Dr. Ritchie), and agreed to by the New Zealand Government, epidemic diseases occurring in this Territory are promptly wirelessly to External Affairs in Wellington, and from there, through the New Zealand Health Department, to the Director of Public Health in Melbourne, thus keeping up a constant chain of communication. In addition, a wireless message is despatched to Wellington on the first of every month, and a quarterly and yearly report of the health of the islands are forwarded and sent on by them as before to Melbourne.

FOOD AND DRUGS.

The New Zealand Food and Drugs Act, 1908, with its regulations, is in force in Western Samoa. During the year the following foodstuffs were condemned and destroyed under the supervision of the officers of the Department: Meat in kegs, 270 lb.; frozen meat, 463 lb.; canned meat, 774 lb.; butter, 195 lb.; fish, 20 lb.; fruit, 95 lb.; bacon, 10 lb.

SANITATION.

(a) *European*.—Permits issued, 72; water-closets installed, 14; sinks installed, 24; lavatory-basins installed, 20; cast-iron baths installed, 9; septic tanks constructed, 9; drainage, 1,426 ft.; number of loads of rubbish removed to the dump, 1,248.

(b) *General*.—Native sanitation: Inspections for the year, 3,551; nuisances discovered and rectified, 1,054.

It will be noted that there is a decided falling-off in the number of premises inspected, and the reason is not far to seek. The inspectors have done their best, but owing to influence of the Mau, which has prevailed in and around Apia, in many instances it has not been possible to carry out the work owing to the various obstacles placed in their way by the owners of the land or *fales*.

There can be no doubt that sanitation generally has suffered very much in the past year, and it is feared that it will be some considerable time before any improvement can take place. In this, as in most matters medical, the co-operation of the Natives is essential to success. At present a lot of sanitary work is being done in and around Apia in the way of drainage, septic tanks, &c., but the Natives have unfortunately fallen far behind, especially in the matter of drop-latrines over the sea, and there are complaints from all parts of both islands as to the condition of the villages.

CHILD WELFARE.

Owing to the political situation, which has caused the women's committees in villages to cease to function, very little has been accomplished this year. As mentioned above, a nurse stationed at Fagamalo, in Savai'i, is doing good work, and is now training another nurse. It is hoped that the women's committees will soon commence work again, and then it will be possible to make another start. At present we have no European Child Welfare officer, but the committees when once set going again can and doubtless will do good and effective work.

The infant-mortality rate for the year under review shows a decrease of 5 per 1,000 live births as compared with 1926, being 101 as against 106. Although these figures show such an improvement, it is doubtful, owing to disorganization caused through the Mau movement, if they are of value from the statistical point of view. They are probably far from correct.

VITAL STATISTICS (SAMOAN).

POPULATION.

The total Native population on the 1st January, 1927, was estimated to be 38,003.

Native Population, Western Samoa.

	Males.	Females.	Total.
At 1st January, 1927	19,385	18,620	38,003
Live births during 1927	824	812	1,636
Arrivals from overseas	555	386	941
Deaths during 1927	286	209	495
Departures for overseas	534	336	870
Population at 31st December, 1927 (estimated) ..	19,942	19,275	39,215
Natural increase	538	603	1,141
Excess of arrivals over departures	21	50	71
Total increase of population	559	653	1,212

The percentage increase in population during 1927 was 3·18, as compared with 3·58 in 1926 and 3·26 in 1925.

The arrivals and departures will be found to balance each other over a period of years.

BIRTHS.

The births of 1,636 living children were registered during 1927, giving a birth-rate per 1,000 of midyear population of 42·37. For 1926 and 1925 the figures were 1,965 and 2,033, the birth-rate being 52·62 and 56·3 respectively. As already pointed out, the falling-off in the number of births this year is believed to be due to non-registration, as it is difficult to find any other cause. Prior to his departure for New Zealand in November, 1927, Dr. T. Russell Ritchie wrote a report to the Secretary of Native Affairs *re* the then-existing position, which report is here quoted in *extenso* :—

“The following notes prove conclusively that although the great majority of births and deaths in Western Samoa are being registered, an appreciable number of people are ignoring the regulations and neglecting to register births, and I think, in some cases, deaths. There is no doubt that there is failure to register births in a number of cases; probably during the past nine months the number not registered amounts to between two and three hundred. In the case of deaths, however, it is more difficult to form an opinion. The records of the past few years lead us to expect a low death-rate (*i.e.*, a low rate as compared with past years). Thus in 1925 the total deaths for the first six months were 301: whooping-cough and a very dry season brought the twelve-months total to 857. For 1926 the total number of deaths was 723. Of these 53 were due to the outbreak of dysentery

during the early part of the year, and 25 to the influenza epidemic of August–September. Thus in both years, if normal conditions had prevailed, the number of deaths would most likely have been under 650. This year, so far (1st November) there has been no unusual prevalence of sickness, nor has there been any epidemic of any kind. It is therefore reasonable to assume that the number of deaths should be low—that is, in the vicinity of 600 to 650. That some deaths have not been registered is surmised from such facts as that for the quarter ended 30th September, no deaths were registered in the district of Sagaga, except 1 at Leauva'a. In this same district, excepting 5 births at Leauva'a, only 1 birth (at Saleimoa) was registered during the quarter. The population of Sagaga (excepting again the village of Leauva'a) is approximately 2,000. For the quarter April–June this district registered 28 births and 13 deaths (again leaving out Leauva'a). It is impossible to believe any other explanation than that when this district became strongly impregnated with Mau doctrines, failure to register almost immediately resulted.

"Some other villages or districts which show marked divergence from the normal expectation, if population is taken as a basis of calculation, are:—

"1. Lepea and Vailoa: Population approximately 600. Births—April–June quarter, 0; July–September quarter, 5. Deaths—April–June quarter, 3; July–September quarter, 0.

"2. Safata district: Population approximately 1,900. Births—April–September, 26. Deaths—April–September, 6. The births registered give a birth-rate of under 30 per 1,000 per annum—a rate which is so much lower than the average for Samoa for years past that it is impossible to believe that it is genuine. The death-rate in New Zealand is the lowest in the world, but the Safata district is apparently trying to beat New Zealand's record, as its annual death rate, based on the figures given, is under 7 per 1,000.

"3. The southern portion of the Aleipata district, comprising the villages of Vailoa, Ulutogia, and Lalomanu. The population of these three villages is approximately 650 (census figures + 6 per cent.). The registered births for the six months April–September number 7, and the deaths 4. The former number is obviously too low, giving a birth-rate of about 22 per 1,000 per annum, whereas for Samoa for some years the rate has been over 50 per 1,000 per annum. The number of deaths registered is too low unless these villages have been exceptionally healthy.

"4. Savai'i: Savai'i does not seem to have been affected so early as Upolu, but the figures for the past quarter show that the Mau movement has been affecting some districts very markedly.

"(a) Satupaitea: Population approximately 500. No births or deaths were registered during the July–September quarter.

"(b) Palauli East, with Gautavai, Gataivai, and other villages in vicinity, but excluding Taga. Population approximately 1,400. Births—April–June, 20; July–September, 2. Deaths—April–June, 8; July–September, 4.

"(c) Palauli West. Population approximately 900. Births—April–June, 4; July–September, 4. Deaths—April–June, 3; July–September, 0.

"Only a few of the more glaring cases have been given above, but the records show that in most districts there has been a falling-off in registrations. It is, of course, possible that there has been a marked decrease in the actual number of births and deaths, but this possibility must, I think, be rejected in view of the unequal distribution of the decrease, and of the fact that the most marked diminution is found in the areas most affected by the Mau.

"The worst areas, in Upolu, appear to be Safata, the southern portion of Aleipata, Sagaga, portion of Faleata, and portions of Anoamaa. Savai'i appears to be less affected, but Palauli (East and West), Satupaitea, and to a lesser degree Faasaleleaga, are most affected.

"The questions of how and when this matter should be investigated and our records completed are not for me to decide, but I sincerely hope that it will be possible to adjust matters before the annual report has to be prepared. I am confident that if the true facts as to births and deaths are obtained, this year will show a record increase in population, also the lowest death-rate Samoa has experienced."

From this report it will be seen that there is good foundation for believing that non-registration is the cause of the falling-off in the live births in the Territory, and the matter is very ably dealt with by the author of the report.

Births of Samoans, Western Samoa, 1927.

							Males.	Females.	Total.
Upolu	..	..	..	..	..	..	541	542	1,083
Savai'i	..	..	..	..	..	..	275	278	553
Total for Western Samoa							816	820	1,636

Births by Months, 1927.

—	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Males ..	82	69	75	75	70	70	64	74	58	67	62	50	816
Females	80	62	82	83	66	56	58	81	60	75	51	66	820
Total	162	131	157	158	136	126	122	155	118	142	113	116	1,636

There were 25 still-births recorded which are not included either as births or deaths in the various figures and rates given in this report. The still-birth rate per 100 live births for the last four years is as follows : 1924, 1.68 ; 1925, 1.82 ; 1926, 2.44 ; 1927, 1.53. The above figures show a drop of 23 still-births as compared with 1926, when 48 were recorded, but it is doubtful if the present year's record is correct.

DEATHS.

During the year 495 deaths were registered, giving a death-rate per 1,000 of midyear population 12.82, whereas during 1926 and 1925 the deaths numbered 723 and 857, with death-rates of 19.36 and 23.75 respectively. If accurate, the above death-rate would be very satisfactory.

Deaths of Samoans, Western Samoa, 1927.

										Males.	Females.	Total.
Upolu	..	..	..	..	..	..	..	..	..	185	143	328
Savai'i	..	..	..	..	..	..	..	..	..	101	66	167
Total for Western Samoa										286	209	495

Deaths by Months, 1927.

—	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Males ..	36	19	27	33	45	31	20	16	11	19	13	16	286
Females	18	14	28	27	20	24	22	13	13	8	15	7	209
Total	54	33	55	60	65	55	42	29	24	27	28	23	495

Ages at Death (Samoans), 1927.

			0-1 Day.	1-2 Days.	2-3 Days.	3-4 Days.	4-5 Days.	5-6 Days.	6-7 Days.	Total 0-1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total 0-1 Month. 1-3 Months.	3-6 Months.	6-12 Months.	Total under 1 Year.	1-2 Years.	2-3 Years.	3-4 Years.	4-5 Years.	5-10 Years.	Over 10 Years	Total.	
UPOLU :—																									
Males	..	..	1	2	1	1	2	..	2	5	3	1	1	7	6	12	36	61	17	4	2	1	10	185	
Females	..	..	..	..	1	1	2	..	2	6	3	..	1	10	6	2	26	44	18	2	4	2	5	68	143
Total	..	..	1	2	2	2	2	..	2	11	3	1	2	17	12	14	62	105	35	6	6	3	15	158	328
SAVA'I :—																									
Males	..	..	1	..	..	1	1	..	1	4	3	..	..	7	4	7	21	39	8	3	2	1	2	46	101
Females	..	..	1	..	..	..	..	..	..	1	2	3	1	7	..	6	8	21	12	1	..	..	1	31	66
Total	..	..	2	..	..	1	1	..	1	5	5	3	1	14	4	13	29	60	20	4	2	1	3	77	167
TOTALS, W. SAMOA :—																									
Males	..	..	2	2	1	2	1	..	1	9	3	1	1	14	10	19	57	100	25	7	4	2	12	136	286
Females	..	..	1	..	1	1	2	..	2	7	5	3	2	17	6	8	34	65	30	3	4	2	6	99	209
Total	..	..	3	2	2	3	3	..	3	16	8	4	3	31	16	27	91	165	55	10	8	4	18	235	495

INFANT MORTALITY.

As has already been stated, the infant-mortality rate for the year under review is 101 per 1,000 births registered, which, compared with 106 for 1926, 186 for 1925, and 153 for 1924, reads very well. Owing, however, to the very strong reasons for believing that this rate is merely approximate, it is not advisable to attach much weight to it. It is a grave pity that the mortality rate for this year has to be viewed with suspicion. Under normal conditions of registration, coupled with the absence of epidemics in any form, a low mortality rate was confidently anticipated. As matters stand at present it is not possible to give more accurate figures, though it is probable that facts *re* registration may shortly come to light which will make the figures quoted to be accepted as fairly accurate in the near future. Much careful work remains to be done to obtain anything like a true record for the year 1927, and, further, much depends upon the willingness or otherwise of the Native officials concerned to disclose their knowledge of the matter. The recorded number of deaths during 1927 (495) is so far below the figures of 1926, which was 723, as to make all statistics for this year seem very doubtful indeed. The percentage of deaths of children as registered works out about 44.4 per cent. under the age of two years and 48.8 under the age of five years.

Percentage of Deaths at Different Ages to Total Deaths.

	Number of Deaths.			Percentage of Total Deaths.		
	1925.	1926.	1927.	1925.	1926.	1927.
Under 1 week	50	31	16	5.83	4.29	3.23
From 1 week to 1 month	36	22	15	4.20	3.04	3.03
From 1 month to 3 months	51	14	16	5.95	1.94	3.23
From 3 months to 6 months	100	37	27	11.67	5.12	5.46
From 6 months to 12 months	142	104	91	16.57	14.39	18.38
From 1 year to 2 years	97	93	55	11.32	12.86	11.11
From 2 years to 3 years	31	32	10	3.62	4.43	2.02
From 3 years to 4 years	29	17	8	3.38	2.35	1.62
From 4 years to 5 years		16	4		2.21	0.81
From 5 years to 10 years	28	27	18	3.27	3.73	3.63
Over 10 years	293	330	235	34.19	45.64	47.48
	857	723	495	100.00	100.00	100.00

TOTAL POPULATION OF WESTERN SAMOA.

	31st December, 1926.	31st December, 1927.	Increase.
Europeans	2,552	2,564	12
Samoans	38,003	39,215	1,212
			Decrease.
Chinese labourers	947	939	8
Melanesian labourers	155	147	8
	41,657	42,865	1,208

In the above table—

“European” means any person other than a Samoan, with the exception of the Chinese and Melanesian labourers employed in Western Samoa, who are here shown under separate headings. Thirteen free Chinese and their Chinese-Samoan descendants are included.

“Samoan” means a person belonging to the Polynesian race, whether by pure or mixed descent, but does not include (a) persons registered as Europeans in accordance with any regulations or Ordinances in force in Western Samoa, or (b) the legitimate children of a father who is a European either by birth or by registration as aforesaid.

“Chinese labourers” means Chinese under contract to work for a term of years in Western Samoa, and includes also twenty-seven labourers who, by reason of long service in Samoa, have been permitted to remain here. (This refers to Chinese who were in Samoa prior to the British military occupation).

“Melanesian labourers” means Solomon-Islanders who were brought to Samoa during the German occupation of this Territory for work on the plantations. The 147 shown are all those remaining, most of them having been repatriated.

HOSPITAL AND DISPENSARY STATISTICS FOR THE YEAR ENDED 31st MARCH, 1928.

	Hospitals.				Totals, including Dispensaries and Travelling Units.	Dispensaries.		Nationality of Hospital In-patients.		
	Apia.	Tuasivi.	Aleipata.	Safotu.		Stations.	Number of Attendances.	Europeans.	Samoans.	Chinese.
(a) In hospital, 1/4/27 ..	82	5	12	3	102	Fagamalo ..	4,975	(a) 10	51	41
(b) Admitted during year ..	1,104	74	105	95	1,378	Fagaloa ..	3,074	(b) 185	888	305
(c) Discharged during year ..	1,077	66	111	94	1,348	Falelatai* ..	311	(c) 178	850	320
(d) Died during year ..	45	5	4	2	56	Fusi ..	1,670	(d) 9	41	6
(e) Remaining, 31/3/28 ..	64	8	2	2	76	Fasitootai ..	5,786	(e) 8	48	20
						Gagaemalae ..	5,731			
						Lefaga ..	3,464			
						Lufilufi ..	2,115			
						Malua ..	5,675			
						Mulifanua ..	4,135			
						Samataitai ..	4,531			
Out-patients attendances, including dressings	41,541	7,059	5,635	6,927	120,191	Satalo* ..	6,017			
Treatments for yaws, N.A.B.	4,473	1,625	626	726	7,450	Sataua ..	3,046			
Treatment for hookworm ..	60	..	442	104	606	Satupaitea ..	5,653			
Operations—						Vaiala* ..	1,054			
Major	218	..	57	42	317	Lotofaga ..	1,788			
Minor	992	29	185	24	1,230	Total ..	59,029			

* Returns incomplete. Vaiala closed 17th September; Falelatai closed 20th October.

The above figures do not include children seen in our child-welfare work, cases attended to at mission stations where no nurse is stationed, nor the numbers visited by members of the European staff.

REVENUE AND EXPENDITURE OF THE DEPARTMENT OF HEALTH FOR THE FIVE YEARS ENDED
31st MARCH, 1928.

Financial Year (1st April to 31st March).			Total Expendi- ture of Depart- ment of Health.*	Percentage of Total Revenue of Territory.	Expendi- ture per Head of Popula- tion.†	Gross Revenue (Cost of Collection not deducted).				
						Subsidy from New Zealand Government.	Native Medical Levy.	European Fees.	Chinese Fees.	Total Revenue of De- partment of Health.
			£		s. d.	£	£	£	£	£
1923-24	..	..	23,995	17·9	12 10·4	12,500	7,327	2,814	2,023	24,664
1924-25	..	..	24,425	18·7	13 0·2	14,000	7,705	1,461	1,140	24,306
1925-26	..	..	25,761	17·2	12 11·1	14,000	9,186	1,705	1,603	26,494
1926-27	..	..	25,912	19·4	12 5·3	14,000	7,292	1,275	2,167	24,732
1927-28	..	..	25,500	..	12 0·0	..	..	..	..	..

* Expenditure shown does not include interest and sinking fund on capital expenditure, cost of repairs to buildings, and miscellaneous expenditure under head XV of general estimates, such as travelling-expenses of officers on leave, &c. Expenditure under these heads does not come under the control of the Department of Health.
† Average population taken as the population as at 30th September each year.
Figures for 1927-28 only approximate, as final Treasury returns not yet received.

APIA HOSPITAL REPORT.

This year the new maternity wing for European patients was opened. The building is of wood on concrete piles, being 60 ft. long by 37 ft. wide, and is connected with the European hospital by two separate entrances, one being a covered extension of the veranda outside the kitchen, and the other a private entrance from the Matron's quarters. The entrance for patients and visitors is by a flight of steps from the road between the Matron's quarters and the Samoan nurses' *fales*. There are three rooms (one labour and two convalescing), with sink-room, sterilizing-room, bathroom, and separate lavatory. The labour, sink-room, sterilizing-room, and bathroom have "Magnus" stone flooring, which gives a very smooth, washable surface. The veranda, which is 10 ft. wide, extends along the whole of the northern side of the building, the western side being boarded in to form a duty-room outside the labour-room for the nursing staff. This veranda is cool and private, being well raised from the road, and commands a direct view of the sea. The new wing was very necessary. It is well away from the patients in the main building, thus making for privacy, besides which it releases the two rooms in the main building hitherto used for this purpose for surgical and medical cases, thus making two more private rooms available. This fact is very much appreciated by the staff. The extra rooms have proved very handy of late, there being now five private rooms available in the main European building.

Plans have been drawn up for an addition to the office building in the form of a library for the medical staff, and also a waiting-room for patients. This when completed will ensure privacy for the Chief Medical Officer, whose small office is at present used during the mornings by all the members of the staff.

It is also hoped that a new mortuary will shortly be erected in concrete, which will allow of the making of post-mortems. It is felt that there is much to learn pathologically from post-mortems—in fact, no true scientific advance can be made without such study.

The Samoan maternity *fale* is still being well patronized, seventy-seven patients having come from all parts of the islands since its opening in July, 1926. A large proportion are normal births, and comparatively few instrumental cases have been admitted. Our Samoan nurses have benefited greatly, as they can treat all normal cases themselves under the supervision of the Medical Officer in charge. They are on duty for about three months at a time, and all those who are trained will take their share of the duties in rotation, being brought in from out-stations for this purpose.

STATISTICS.

The analysis of hospital statistics follows the plan of last year, and is for the calendar year, 1927.

TREATMENT: MEDICAL.

As submitted earlier in the report, there has been no epidemic this year, consequently the admissions to hospital show a decided decline as compared with last year. This in itself is conclusive evidence that the general health of the Natives has been consistently good during the past year. Samoans are peculiarly liable to lung affections, such as pneumonia, broncho-pneumonia, and bronchitis, and every change of season tells its tale. Pneumonia (lobar) accounts for forty-six admissions, with seven deaths, nearly all of which occurred in children who were practically moribund on admission. Bronchitis figures largely with thirty-six cases, as against only eight broncho-pneumonias; but, as most of them were children, it is probable that in many instances at least the former developed into the latter. Twenty-three cases of the enteric-fever group were admitted during the year, most of them agglutinating *B. typhosus*, and there were no deaths from this disease.

TREATMENT: SURGICAL.

Great strides have been made in this department. There is now a surgeon in charge of all cases admitted to hospital in every department. The number of operations performed for the year under review is 171 major and 810 minor operations. Among the former are gastro-enterostomies, hysterectomies, resections of bowel, and operations on the gall-bladder as well as ectopic gestations. As most of these important operations have been performed on Samoans, those who know and realize what Samoan psychology is will fully appreciate the advance in surgery which has been made. It speaks volumes for the confidence the Samoans have in a surgeon that they will submit cheerfully to operations of this nature. Last year's forecast in regard to the use of local anæsthesia has come true, and with a perfected technique, all hydroceles as well as elephantoid scrota and most hernias are now operated upon by this method, which has so many advantages over general anæsthesia, not the least of which being that one man can do the work which previously required two at least.

Abscesses account for sixty-two admissions, mostly due to the *Staphylococcus albus* or *aureus*, and it will be interesting to know whether they have any connection with filarial infection or not, the evidence so far being against such incidence.

More and more cases of cancer are coming to light—intestinal, stomach, and uterine being most frequently met with. Many cases are inoperative when seen, others again being confirmed by an exploratory operation. It is difficult to state with any accuracy, up to now, if cancer is really on the increase or not, as Samoans, in common with many other peoples, prefer to experiment with their own methods of treatment in cases with doubtful symptoms, and the increase as noticed recently may be merely coincidental, due to the fact that a great number of cases have been overlooked previously through not coming up for treatment in time.

CHINESE COOLIES.

The number of admissions is slightly diminished compared with last year, no special disease predominating.

APIA HOSPITAL: ATTENDANCE, OPERATIONS, ETC., FOR YEAR 1927.

General attendance (includes out-patient attendance, out-patient dressings, N.A.B. injections, and injections for elephantoid fever)	..	..	..	..	..	..	..	39,533
Out-patient attendance (European and Samoan)	..	..	..	..	..	..	..	15,546
Out-patient dressings (European and Samoan)	..	..	..	..	..	..	..	20,286
N.A.B. injections—								
First injections	..	..	..	..	..	..	..	1,265
Second injections	..	..	..	..	..	..	..	1,177
Third injections	..	..	..	..	..	..	..	1,130
								3,572
Injections for elephantoid fever	..	..	..	..	..	..	..	129
European in-patients	..	..	..	..	..	..	..	177
Samoan in-patients	..	..	..	..	..	..	..	589
Chinese and Melanesian in-patients	..	..	..	..	..	..	..	349
Chinese and Melanesian out-patients	..	..	..	..	..	..	..	192
Operations—								
Major	..	..	..	..	..	..	..	171
Minor	..	..	..	..	..	..	..	810
X-rays	..	..	..	..	..	..	..	33

REPORT OF THE LABORATORY, GOVERNMENT HOSPITAL, APIA, 1927.

The total of routine specimens recorded is 1,237. The specimens comprise the following:—

Fæces.—Ova (each specimen examined by direct smears and Willis method): Hookworm ova (positive), 39; ascaris ova (positive), 11; trichuris (positive), 38. Adult worms: In most cases 3 specimens obtained after treatment were examined. Hookworm (positive), 17; ascaris (positive), 7. Occult blood (positive), 11. Bacteriological examinations: Positive T.B., 1; *B. dysenteriae* "shiga" (positive), 23 (in 22 specimens the organism was confirmed by fermentation reactions and agglutination tests); *E. histolytica* (positive), 3.

Urines.—Total specimens examined, 390, containing—Albumin, 238 (in 4, an estimation of albumin was requested); sugar, 29; blood, 49; bile, 16; acetone, 4; urea estimations, 5. Centrifugalized deposits were examined in all but 7 of the specimens. Those containing pus cells, 195; casts, 29. Bacteriological reports were made from smears in non-catheter specimens, and cultures in the case of catheter specimens. Organisms present: *Bacillus coli*, 61; streptococci (including enterococci), 29; staphylococci, 7.

Sputa.—Number examined, 123. Gram and Ziehl Neelson smears were prepared from each specimen, while cultures were prepared from 29. Number positive for T.B., 21 (1 by guinea-pig inoculation). *Bron. spirochaetosis*: Specimens were examined by smears and dark-ground illumination, but no positives have been found.

Blood Specimens.—Widals: Number done, 47. Positive *B. typhosus*, 22; positive *paratyphosus* "A," 1; positive *paratyphosus* "B," 4. The serum in one case agglutinated all three, in a dilution of 1/250. Blood cultures: Streptococcal, 2.

Filarial examinations: Positive, 33. A total of 171 positives was obtained in specimens collected for other purposes. Total cell-counts, 59; hæmoglobin estimations (Sahli's method), 71; differential counts, 131; blood-sugar estimations, 17; Van den Bergh's test for bile-pigments, 9.

Miscellaneous swabs, including specimens of pus. Reports issued from smears and cultural findings : Streptococcal, 19 ; staphylococcal, 37 ; *Bacillus coli*, 5 ; *B. welchii*, 2 ; tubercle bacilli, 1.

Veneral Examinations.—Total number, 41. Urethral (positive), 23 ; cervical (positive), 5 ; vaginal (positive), 1.

Kahn Precipitin Tests.—Number done : Diagnostic, 5 ; other specimens, 73.

Puncture Fluids.—Number examined, 39. C.S.F. containing—Streptococci, 1 ; pneumococci, 1. Other specimens : Streptococcal, 7 ; staphylococcal, 5 ; pneumococcal, 3.

Leprosy.—Number examined, 11. Nasal smears (positive), 4 ; skin-scrapings, &c. (positive), 1.

Animal Inoculations.—Number done, 4. Positive T.B., 1. Autogenous vaccines prepared, 15. Tissue for sections, 14.

Stomach-contents for general examination and estimation of acidity, 5.

The number of samples of beer, &c., for estimation of alcohol totalled 29.

APIA HOSPITAL : CLASSIFIED ADMISSIONS TO EUROPEAN WARDS.

—	Remaining in Hospital.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.	Deaths.
<i>Alimentary System.</i>															
Appendicitis	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Colic	..	..	..	1	..	..	..	..	..	..	1	..	..	2	..
Constipation	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Dental extractions ..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..
Gastritis	..	..	2	..	1	..	..	..	..	2	..	..	1	6*	..
Gastro-enteritis	..	..	..	..	1	1	..	1	1	1	..	..	..	5	..
Jaundice	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Malnutrition	..	..	..	..	2	..	..	..	..	..	1	1	..	4	..
Diarrhoea	..	..	..	..	..	..	..	..	..	..	1	..	2	3	..
Hæmorrhoids	..	..	..	..	1	..	..	..	..	..	1	1	..	3	..
<i>Circulatory System.</i>															
Adenitis	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..
Hæmorrhage	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
P.U.O.	..	..	..	1	..	..	1	..	1	..	..	1	..	4	..
Cardiac	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..
<i>Genito-Urinary System.</i>															
Abortion	..	1	..	..	1	..	..	1	..	1	..	..	1	5	..
Circumcision	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Confinements	..	..	..	3	1	1	1	1	6	1	4	1	2	21	..
Curettage	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Cystitis	..	..	4	1	..	..	..	..	..	..	..	..	..	5	..
Hydrocele	..	1	1	..	..	1	..	..	..	..	..	1	..	4	..
Orchitis	..	..	..	1	..	1	..	..	..	..	..	..	..	2	..
Parametritis	..	..	..	1	..	..	..	1	..	..	..	..	..	2	..
Puerperal fever	..	..	..	..	..	..	..	..	1	..	..	..	..	1†	..
Pyelitis	..	..	..	1	..	..	..	..	..	..	..	..	1	2	..
Elephantiasis	1	..	..	..	..	..	..	..	..	..	..	..	1	2	..
Hernia	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Ovarian cyst	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Rectocele and cystocele ..	..	..	..	..	..	..	1	..	..	1	..	..	..	2	..
Uterine	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..
Vomiting of pregnancy ..	..	1	..	..	..	..	..	..	..	..	..	1	..	2	..
<i>Nervous System.</i>															
Lumbago	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..
Neurasthenia	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
<i>Respiratory System.</i>															
Bronchitis	..	2	1	1	..	..	1	1	..	1	..	..	..	7	..
Hæmoptysis	..	..	..	..	..	..	..	..	1	..	..	..	..	1†	..
Pneumonia (bronchial) ..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Pneumonia (lobar)	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1
Phthisis	..	..	..	..	1	1	..	..	..	..	1	..	..	3	1
Tonsilitis	..	..	..	..	..	..	..	2	1	..	..	..	1	4	..
Pleurisy	..	..	..	1	..	..	..	..	1	..	1	2	..	5	..
<i>Skin and Subcutaneous Tissues.</i>															
Carbuncle	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Cellulitis	..	..	1	..	1	1	..	..	..	..	..	..	..	3	..
Dermatitis	..	1	..	..	1	..	..	..	..	..	..	..	..	2	..
Furunculosis	..	..	..	..	1	1	..	..	..	..	..	..	..	2	..
Myositis tropica	..	..	..	..	1	1	..	1	..	1	..	..	..	4	..
Ulcers	..	..	..	..	..	1	1	..	..	..	..	..	..	2	..
<i>Supporting Structures.</i>															
Abscess	..	..	1	2	1	..	1	..	1	1	2	..	..	9	..
Bone-osteomyelitis	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Bursitis	..	..	..	..	..	..	..	1	..	1	..	..	..	2	..
Fractures	..	..	..	..	..	..	1	..	1	..	2	..	..	4	..
Injuries (cuts)	..	1	..	..	..	..	..	1	..	1	..	..	..	3	1§
Wounds, septic	..	..	1	..	..	..	..	..	..	1	..	..	..	2	..
Hammer-toe	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Synovitis (knee)	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..

* Convulsions.

† Confined outside.

‡ Tuberculosis.

§ Murdered.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO EUROPEAN WARDS—*continued.*

	Remaining in Hospital.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.	Deaths.
<i>Special-sense Organs.</i>															
Conjunctivitis ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Mastoiditis ..	..	..	..	..	..	..	..	..	1	..	..	..	..	1*	..
Stye ..	..	..	..	..	..	..	..	..	..	..	1	..	1	2	..
<i>Infectious Diseases.</i>															
Dysentery (bacillary) ..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Enteric - fever group (<i>B. typhosus</i>) ..	..	..	..	..	..	..	2	..	..	2	1	..	..	5	..
Influenza ..	..	1	..	..	..	..	..	..	..	..	2	..	1	4	..
Tetanus ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1†
<i>Parasites.</i>															
Ascariasis ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Filariasis ..	..	..	..	..	..	..	..	..	1	..	1	..	..	2	..
Hookworm ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
<i>General.</i>															
Poisoning (food) ..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Rheumatism ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Poisoning (insects) ..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Mongolism ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
<i>Tumors.</i>															
Carcinomata ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Fibromata ..	..	..	..	..	..	1	..	..	..	..	1	..	..	2	..
Totals ..	1	10	14	17	15	16	13	12	18	17	18	11	15	177	4

* Operation.

† Acute.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO SAMOAN WARDS.

	Remaining in Hospital.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Deaths.
<i>Alimentary System.</i>															
Ascites ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colic ..	..	1	..	1	1	1	..	..	2	..	..	..	..	6	1*
Cholecystitis ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Constipation ..	..	..	1	..	..	..	1	1	..	..	..	..	..	3	..
Diarrhoea ..	..	1	2	2	3	..	..	..	..	..	1	..	..	9	..
Gastritis ..	..	3	1	..	1	..	..	..	..	..	..	..	..	5	..
Gastro-enteritis ..	..	2	2	2	2	1	..	..	..	2	1	1	..	13	..
Hare-lip ..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Hernia ..	1	..	..	..	..	2	..	1	..	2	..	..	1	7	..
Jaundice ..	..	..	..	..	..	2	..	..	1	..	..	..	..	3	1
Marasmus ..	2	..	1	..	1	3	2	..	..	..	2	1	1	13	4
Peritonitis ..	..	..	1	..	..	..	1	..	..	..	..	..	..	2	2
Tuberculosis (general) ..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..
For feeding ..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Alcoholism ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1†	..
Cyst ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1†	..
Convulsions ..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Dentition ..	..	..	1	..	2	..	..	..	2	..	..	..	..	5	..
Hæmatemesis ..	..	1	..	..	..	..	..	..	..	2	..	..	..	3	..
<i>Circulatory System.</i>															
Adenitis ..	1	1	2	..	..	2	2	1	1	..	..	2	..	12	..
Cerebral hæmorrhage ..	..	..	..	..	..	..	..	2	1	..	..	..	..	3	..
Hyperpiasis ..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Filarial fever ..	..	1	..	1	..	1	..	..	..	..	1	..	..	4	..
<i>Genito-urinary System.</i>															
Abortion ..	..	1	..	..	..	1	..	..	..	..	3	3	..	8	..
Confinements ..	1	2	..	3	3	1	3	6	3	3	2	3	6	36	1§
Cystitis ..	..	..	2	..	..	..	..	..	1	..	..	..	..	3	..
Ectopic pregnancy ..	1	..	..	..	..	..	..	..	..	..	..	2	..	3	..
Endometritis ..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Gonorrhoea ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Hydrocele ..	2	..	2	1	..	4	4	1	1	2	3	2	2	24	..
Orchitis ..	..	..	..	..	1	..	1	..	..	..	..	..	1	3	..
Ovarian cyst ..	..	..	1	..	1	..	..	..	..	..	..	1	..	3	..
Salpingitis ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Uterine displacement ..	..	..	..	..	1	..	..	1	..	..	..	..	..	2	..
Amenorrhoea ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Calculus ..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Curettagé ..	..	..	..	..	..	..	..	..	1	1	..	..	..	2	..
Dysmenorrhoea ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Elephantoid scrotum ..	1	..	..	1	1	..	..	2	..	..	..	1	2	8	..
False labour ..	..	..	..	..	..	..	..	..	..	1	..	1	..	2	..
Metrorrhagia ..	..	..	..	1	..	..	..	..	..	..	..	..	1	2	..
Nephritis ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Pyelitis ..	..	..	1	1	..	..	..	..	..	..	..	..	..	2	..
Sæpraemia ..	..	..	..	1	..	..	..	..	..	..	..	..	1	2	..
Sterility ..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	..
Vomiting of pregnancy ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..

* Intestinal obstruction.

† Half-caste.

‡ Branchial.

§ Confined outside.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO SAMOAN WARDS—*continued*.

	Remaining in Hospital.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.	Deaths.
<i>Nervous System.</i>															
Neuritis	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Meningitis	..	..	2	2	..	..	1	..	..	..	..	1	..	6	1
Epilepsy	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Neurasthenia	..	..	..	..	..	..	..	1	..	..	..	1	..	2	..
Spastic rigidity	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Vertigo	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
<i>Respiratory System.</i>															
Bronchitis	..	6	2	5	1	5	4	4	2	2	3	2	..	36	2
Broncho-pneumonia	..	..	..	1	2	1	..	2	1	1	..	..	..	8	1
Hæmoptysis	..	..	1	..	..	..	..	..	..	1	..	..	..	2	..
Laryngitis	..	..	..	..	..	..	1	..	..	..	..	..	1	2	..
Phthisis (pulmonary)	..	..	2	1	1	..	..	2	2	..	..	..	1	9	..
Pleurisy	..	2	..	..	..	3	1	..	..	1	..	1	1	9	1
Pneumonia (lobar)	..	8	4	7	4	2	5	1	3	..	2	3	4	43	7
<i>Tumors (Benign).</i>															
Angioma	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..
Cerebellar pituitary body	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Lipoma	..	..	..	..	1	1	1	..	..	1	..	..	..	4	..
Fibroma, eyebrow	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Dermoid cyst (ovary)	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Fibroma uterine	1	..	..	..	..	..	..	..	..	..	..	1	..	2	..
<i>Tumors (Malignant).</i>															
Carcinoma	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
(a) Intestinal	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
(b) Rectal	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
(c) Stomach	..	..	..	..	..	3	1	..	..	..	1	1	1	7	..
(d) Uterus	..	..	..	..	..	..	..	..	..	..	..	1	1	2	..
Sarcoma—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(a) Right upper jaw	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
(b) Kidney	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
<i>Skin and Subcutaneous Tissues.</i>															
Burns	..	..	1	..	..	..	..	..	1	..	..	..	..	2	..
Cellulitis	1	..	..	..	..	..	..	..	..	..	..	..	1	2	..
Dermatitis	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Ulcers	1	..	..	2	..	..	..	..	..	..	..	..	1	4	..
Mumu	..	..	..	..	..	..	..	1	..	..	2	..	..	3	..
Carbuncle	..	..	1	..	..	..	..	..	1	..	..	1	..	3	..
<i>Supporting Structures.</i>															
Abscess	3	3	3	3	7	8	8	7	3	4	11	2	3	65	..
Arthritis	..	..	..	..	1	3	..	1	..	..	1	1	2	9	..
Bone necrosis	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Fractures and dislocations	..	1	..	..	..	..	..	..	1	..	1	..	..	3	..
Injuries (accidents)	1	1	1	1	3	..	..	1	..	1	1	..	2	12	..
Myositis	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..
Osteomyelitis	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..
Wounds	..	1	1	4	1	3	2	2	3	2	2	3	..	24	..
<i>Special-sense Organs.</i>															
Conjunctivitis	..	..	..	2	2	2	2	1	2	..	..	..	..	11	..
Evisceration of eye	..	..	..	1	..	..	..	..	1	..	..	..	..	2	..
Otitis media	..	..	..	..	1	1	..	..	..	..	..	..	..	2	..
Ophthalmia neonatorum	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Ear (foreign body in)	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
<i>Parasites.</i>															
Ascariasis	1	..	..	..	..	..	..	..	1	..	..	..	1	3	..
Filariasis	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
<i>Infectious Diseases.</i>															
Chicken-pox	..	..	..	..	..	1	..	..	2	..	..	..	..	3	..
Dysentery bacillary	..	..	9	3	2	3	4	2	..	..	..	..	..	23	1*
Enteric-fever group	..	2	1	1	3	3	1	1	2	..	1	..	..	15†	..
Influenza	..	..	..	..	..	..	..	1	1	..	..	1	..	3	..
Infantile paralysis (doubtful)	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Leprosy	..	1	..	2	..	..	..	..	..	..	..	..	..	3	..
Septicæmia	..	1	..	..	..	..	..	..	1	..	..	..	..	2	..
Tetanus	..	..	..	..	1	..	..	2	..	..	1	..	..	4	2
<i>General.</i>															
Poisoning (ptomaine)	..	..	..	..	..	..	..	..	3	..	..	..	..	3	..
P.U.O.	..	1	1	..	..	3	3	3	1	2	2	1	1	18	1
Premature birth	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Fibrositis	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Hæmorrhage, various causes	..	..	..	..	2	..	..	2	..	..	..	..	..	4	..
<i>Abnormalities.</i>															
Congenital	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Totals	20	46	50	50	53	67	50	52	45	32	40	43	41	589	26

* Shiga.

† *B. typhosus*.

APIA HOSPITAL : CLASSIFIED ADMISSIONS TO CHINESE WARD.

	Remaining in Hospital.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.	Deaths.
<i>Alimentary System.</i>															
Cirrhosis of liver ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colic ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Constipation ..	..	..	1	1	..	..	1	2	1	..	..	..	..	6	..
Diarrhoea ..	..	2	..	..	..	..	..	..	1	3	..	1	1	8	..
Fistula in ano..	..	..	..	1	..	..	1	..	..	..	..	..	..	2	..
Gastritis ..	..	..	..	1	..	..	..	..	..	..	..	1	..	2	..
Jaundice ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
<i>Circulatory System.</i>															
Adenitis ..	..	..	..	..	..	..	..	..	1	..	..	1	..	2	..
Cardiac ..	1	..	..	..	..	..	..	1	..	..	..	..	..	2	..
Mumu ..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Rheumatism ..	..	2	..	..	..	..	..	..	1	..	..	..	..	3	..
<i>Genito-urinary System.</i>															
Diabetes ..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1*
Elephantiasis scroti ..	..	1	1	..	..	..	..	..	..	..	..	..	..	2	..
Gonorrhoea ..	..	..	..	1	..	..	1	..	..	..	..	..	..	2	..
Hydrocele ..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Nephritis ..	1	..	..	..	..	..	..	..	..	1	..	..	..	2	..
Paraphimosis ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Urethritis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Nervous System.</i>															
Mental ..	..	1	..	..	..	..	..	..	..	..	1	..	..	2	..
<i>Respiratory System.</i>															
Bronchitis and asthma ..	..	2	1	1	1	1	3	1	..	1	2	..	..	13	..
Cough U.O. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hæmoptysis ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Phthisis (pulmonary) ..	1	..	..	..	1	1	..	..	1	..	..	..	..	4	1†
Pleurisy ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Pneumonia ..	..	1	..	..	..	1	..	..	..	..	..	..	..	2	1
Tonsilitis ..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..
<i>Skin and Subcutaneous Tissues.</i>															
Boils and carbuncles ..	..	4	..	1	..	..	..	1	..	2	..	1	..	9	..
Burns and scalds ..	..	..	..	..	..	..	1	..	..	2	..	..	..	3	..
Cuts and wounds ..	1	1	5	3	6	6	3	4	4	4	2	4	3	46	..
Cysts (sebaceous) ..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Dermatitis ..	..	3	1	1	1	1	..	..	..	2	..	1	..	10	..
Scabies ..	..	..	1	2	..	1	..	1	..	..	..	..	..	5	..
Septic sores ..	1	2	3	6	10	12	5	3	..	1	2	1	1	47	..
Ulcers ..	1	1	..	3	..	2	4	5	3	2	1	1	..	23	..
<i>Supporting Structures.</i>															
Abscess ..	..	7	4	4	3	4	8	1	3	3	1	1	..	39	1‡
Bone necrosis ..	1	..	..	..	..	..	..	..	..	..	..	..	1	2	..
Fractures ..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Injuries (accidents, &c.) ..	..	1	..	..	1	1	1	1	..	..	..	3	..	8	..
Synovitis ..	..	..	..	1	..	..	..	..	..	1	..	..	..	2	..
<i>Infectious Diseases.</i>															
Beriberi ..	..	2	3	1	..	1	..	1	..	..	..	..	..	8	..
Dysentery (bacillary) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery (amoebic) ..	..	1	..	..	..	..	..	..	..	..	..	..	..	1§	..
Enteric-fever group ..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	..
Malaria ..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
P.U.O. ..	..	1	4	1	1	1	1	2	..	1	..	1	1	14	..
Tetanus ..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Yaws ..	..	..	1	1	..	..	..	..	..	..	..	..	..	2	..
<i>Special-sense Organs.</i>															
Conjunctivitis ..	..	1	..	1	2	2	2	..	..	..	..	..	2	10	..
Corneal ulcer ..	1	..	..	..	2	..	..	..	..	..	..	..	..	3	..
Otitis externa ..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Otorrhoea ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Parasites.</i>															
Filariasis ..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	..
Hookworm ..	..	2	..	..	..	..	1	1	..	..	1	1	..	6	..
<i>General.</i>															
Fibrositis ..	..	1	..	..	..	..	1	1	..	..	..	1	..	4	..
Malingering ..	..	1	2	1	..	1	..	..	..	..	1	..	..	6	..
Poisoning (ptomaine) ..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Spastic paralysis ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Totals ..	8	38	27	33	30	37	35	27	19	26	12	18	10	320	4

* Coma.

† Laryngeal.

‡ Liver.

§ Chronic *B. typhosus*.

APIA HOSPITAL: ADMISSION OF MELANESIAN LABOURERS.

	Remaining in Hospital.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.	Deaths.
Abscess	..	..	..	..	1	1	..	1	..	..	1	..	..	4	..
Arthritis	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Burns	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..
Conjunctivitis and iritis ..	..	1	..	..	..	..	..	..	..	..	1	..	1	3	..
Corneal ulcer ..	..	..	..	..	..	..	..	..	..	..	1	..	..	1*	..
Cuts and wounds ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Diarrhoea ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Enteric-fever group ..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Hydrocele ..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Injury ..	..	..	..	..	..	..	1	1	..	..	..	1	..	3	..
Leprosy ..	1	..	1	..	..	..	..	..	..	..	..	..	..	2	..
Liver ..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1†
Lumbago ..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Paraphimosis ..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Pleurisy ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Phthisis ..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1‡
Pneumonia ..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
P.U.O. ..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Stomatitis ..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Ulcer ..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Totals ..	1	1	1	..	4	1	3	3	1	1	7	4	2	29	2

* Panophthalmitis. † Acute suppuration. ‡ Haemoptysis.

APIA HOSPITAL: MAJOR SURGICAL OPERATIONS, 1927.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
On skin and cellular tissues—													
Abscess	2	3	3	1	4	3	2	1	1	2	2	1	25
Branchial cyst	..	..	..	..	1	..	..	..	..	..	..	..	1
Glands	..	..	1	..	1	..	1	1	..	..	1	..	5
Lipoma	..	..	..	1	1	1	..	..	..	..	..	1	4
Repair of wounds, tendons, &c. ..	..	..	..	..	..	..	1	1	1	..	..	1	4
Sebaceous cyst	..	..	..	..	..	..	..	..	..	..	..	..	..
On bones—													
Amputations	..	..	..	..	2	..	..	..	..	1	..	..	3
Necrosis	1	..	..	..	..	..	..	..	..	..	..	..	1
Osteomyelitis	..	..	1	..	..	..	..	..	..	..	..	..	1
On joints—													
Knee	1	1	1	..	1	..	..	..	..	..	..	..	4
Shoulder	..	..	..	1	..	..	..	..	..	..	..	..	1
Hip	..	..	..	..	..	..	1	..	..	..	..	..	1
On eye—													
Evisceration	..	..	..	..	1	..	..	..	..	..	..	..	1
Lids (growth of)	..	..	..	..	..	..	..	..	1	..	..	..	1
Lachrymal sac	..	..	..	1	..	..	..	..	..	..	1	..	2
Pterygium	..	..	..	..	..	..	..	..	1	..	1	..	2
On ear, nose, and throat—													
Foreign body in ear	..	..	..	..	..	..	1	..	..	..	..	..	1
Mastoid antrum	..	..	..	..	..	..	..	1	..	..	..	..	1
Tonsils and adenoids	..	..	..	..	..	..	..	..	..	..	..	1	1
Tracheotomy	..	..	..	..	..	1	..	..	..	..	..	..	1
On abdomen—													
Appendicectomy	..	1	..	..	..	..	..	..	..	..	..	..	1
Fibromata	..	..	..	..	..	..	..	..	..	1	..	..	1
Dermoid cyst of ovary	..	..	..	1	..	..	..	..	..	..	1	..	2
Ectopic gestation	..	..	..	..	..	..	..	..	..	..	1	1	2
Gastro-enterostomy	..	..	..	..	..	1	..	..	..	..	..	..	1
Resection of bowel	..	..	..	1	..	..	..	..	..	..	..	..	1
Hernia	..	..	..	..	3	..	1	..	1	1	..	..	6
Hysterectomy	..	..	..	1	..	..	..	..	..	..	1	..	2
Nephrectomy	..	..	..	..	..	..	..	..	..	..	..	1	1
Ovariectomy	..	..	2	..	..	..	..	..	..	..	1	..	3
Laparotomy	..	..	..	..	..	..	..	..	..	..	1	..	1
Liver-abscess	..	..	..	1	..	..	..	..	..	..	..	..	1
Peritonitis (T.B.)	..	1	..	..	1	..	..	..	..	..	..	..	2
On male organs—													
Elephantoid scrotum	1	..	1	..	..	3	..	..	..	..	1	1	7
Castration	..	..	..	1	1	..	..	..	..	1	..	..	3
Cystoscopy	..	1	1	..	..	..	1	..	..	..	..	..	3
Urethrotomy	1	1	..	..	..	..	..	..	..	..	..	..	2
Hydrocele	1	3	1	1	5	4	2	1	2	1	4	3	28
On female organs—													
Curettage of uterus	1	..	..	..	..	2	..	1	2	..	3	1	10
Pelvic abscess	..	..	1	..	..	..	..	..	..	..	1	..	2
Dilatation of cervix	..	..	..	1	..	..	..	..	..	..	..	..	1
Perineorrhaphy	1	..	..	..	..	1	..	..	..	..	..	..	2
Rectocele and cystocele	..	..	..	..	..	..	..	..	1	..	..	..	1
Vaginal examination	..	..	..	..	..	..	..	..	..	..	1	..	1
General—													
Empyema	..	..	2	1	..	..	..	..	..	..	..	..	3
Extraction of teeth	..	1	1	..	..	1	..	..	..	..	..	..	3
Hare-lip	1	..	..	..	..	..	..	..	..	..	..	..	1
Papilloma of mouth	1	..	..	..	..	..	..	..	..	..	..	..	1
Fistula in ano	..	..	1	..	..	1	..	..	..	..	..	..	2
Hæmorrhoids	..	..	..	..	..	..	..	..	..	1	1	..	2
Sinus	..	..	..	..	..	..	1	2	1	..	..	..	4
Fracture (reduction of)	..	..	..	..	..	..	..	1	1	..	..	..	2
Dislocation (reduction of)	..	..	..	..	..	..	..	1	..	1	..	..	2
Hammer-toe	..	..	..	..	..	..	..	1	..	..	..	..	1
Carbuncle	..	..	..	..	..	..	..	1	..	..	..	..	1
Induction of labour	..	..	..	..	..	..	..	..	..	..	1	..	1
Needle in wrist	..	..	..	..	..	..	..	..	..	..	1	..	1
Angioma	..	..	..	..	..	..	..	..	..	..	2	..	2
Dermoid cyst of brow	..	..	..	..	..	..	..	..	..	..	1	..	1
Totals	11	12	16	12	21	18	11	12	12	9	26	11	171

Minor operations 810.

APPENDIX A.

APIA OBSERVATORY: SUMMARY METEOROLOGICAL OBSERVATIONS, 1927.

1927.	Pres-ure.		Temperature.				Humidity.		Rainfall.	Sunshine.	Number of Deaths per Month.
	Mean.	Variation from Normal.	Mean.	Variation from Normal.	Absolute Maximum.	Absolute Minimum.	Mean.	Total.	Variation from Normal.	Total.	
	Inches.		°F.				%	Inches.		Hours.	
January ..	29-806	+ .042	79-53	+ 0-52	88-5	71-2	86-9	28-80	+ 11-99	158-1	54
February ..	29-827	+ .049	79-16	+ 0-16	87-8	72-1	87-7	17-93	+ 2-22	121-6	33
March ..	29-850	+ .050	79-59	+ 0-25	88-0	72-3	84-8	8-11	— 5-43	198-8	55
April ..	29-844	+ .022	79-67	+ 0-76	88-3	71-1	84-5	10-68	+ 0-44	234-7	60
May ..	29-859	+ .001	80-11	+ 1-71	87-6	71-1	84-2	7-59	+ 2-08	240-4	65
June ..	29-902	+ .028	79-94	+ 2-14	87-3	72-3	82-0	4-10	— 1-06	211-9	55
July ..	29-894	+ .010	79-56	+ 2-36	86-4	71-6	83-4	3-36	+ 0-72	250-5	42
August ..	29-901	+ .011	80-27	+ 2-47	86-4	71-4	84-0	1-36	— 1-79	259-8	29
September ..	29-915	+ .027	79-88	+ 1-67	86-4	71-6	81-1	4-20	— 0-92	236-4	24
October ..	29-888	+ .020	80-04	+ 1-62	87-4	72-5	85-3	12-90	+ 6-84	213-7	27
November ..	29-778	— .032	80-39	+ 1-70	89-1	73-8	84-9	13-22	+ 3-93	182-9	28
December ..	29-784	+ .007	80-35	+ 1-10	88-7	73-4	86-7	20-08	+ 6-46	167-3	23
	29-854	+ .020	79-874	+ 1-39	87-66	72-03	84-62	132-33	+ 25-46	2,476-2	495

APPENDIX B.

A MEDICAL SURVEY OF THE TOKELAU (UNION) ISLANDS.

By A. F. MACKAY, M.B., B.Ch. (N.Z.), of the Samoan Medical Service.

IN June, 1926, a medical survey was made of the Tokelau (or Union) Islands to ascertain the general health of the Natives.

These islands are now administered from Western Samoa, having been taken over from the Gilberts and Ellice Islands Colony about a year previous to the survey. The group consists of three coral atolls situated about three hundred miles north of Samoa and about fifty miles apart. Each atoll consists of a coral reef enclosing a central lagoon. Every here and there the reef is raised into islets about 10 ft. to 20 ft. above sea-level, and it is possible at low tide to walk right round from one islet to the next, there being no boat-passage at any spot between the lagoon and the outside sea. Only one islet is inhabited in each of the atolls, the remainder being used for growing food and copra. At Fakaofu the village islet is very small—no more than 12 acres—yet over four hundred people are living upon it. At Nukunono and Atafu the village islets are larger and are not so crowded.

Opportunity had to be taken of the visits of a local trading-schooner to reach the group and to move from island to island, fifteen days being spent on Fakaofu (population 444), twelve days on Nukunono (population 225), and six days on Atafu (population 360). The first two days on each island were occupied in examining the Natives, and the remaining days were devoted to treatment.

In language and appearance the Natives closely resemble the Samoans, both races being Polynesians. They live in huts rectangular in shape, with roofs and walls thatched with the leaves of the pandanus. The floors are of coral, and are covered with mats. As a rule there are several doorways, and these can be closed with coconut-leaf blinds.

Sanitation is primitive but effective. Drop latrines are built out over the lagoon, and are used. Rubbish is either buried in pits to form humus in which to grow bananas, or is thrown over the reef. Pigs are kept out of the villages behind pig-walls. Rats abound, especially on Nukunono. Flies and mosquitoes are conspicuous by their absence on the village islets, but are plentiful on the others.

For water the Natives have to depend on rain, which is collected in concrete and iron tanks. A few brackish wells exist. Water is seldom used for drinking purposes, however, the usual drink being coconut-milk.

The choice of the Tokelau-Islander in the matter of his diet is extremely limited. Coconut and fish are the staple foodstuffs. Pigs and fowls are plentiful, but are only eaten on special occasions. There is an edible pandanus the fruit of which is eaten, but the taro, the breadfruit, and the banana, which are so abundant in Samoa, are luxuries in these isles. Notwithstanding the coconut and fish diet, the physique on the whole is splendid and the general health good.

Stationed on the island of Atafu is a Native medical practitioner, born on the island but trained in Fiji. He has quite a good general knowledge of medicine, and seems keen on his work. To assist him he has a Native boy, whom he has trained himself. On each of the other two islands, Fakaofu and Nukunono, there is a Native dresser-boy. These two have had a three-months course of elementary medicine in Funafuti some years back. Their knowledge is necessarily extremely limited, yet they do quite good work on their respective islands. I think it would be better if the Native medical practitioner, instead of being permanently stationed at Atafu, as he is at present, were to visit the other two islands when he has the opportunity. He should also, I think, spend one month every year in Samoa, to keep abreast of the times. In this way he would serve the whole group and not just one island.

RINGWORM.

This is very prevalent, *Tinea imbricata*, *Tinea corporis tropicalis*, and *Tinea alba* being the chief varieties. *Tinea imbricata* is commonly known as "Tokelau ringworm." Apparently in the early days it was much more prevalent in these islands than it is to-day; hence the name "Tokelau ringworm." This ringworm is such a striking disfigurement—or one might even say, ornamentation—that on landing on these islands the attention is perhaps rather unduly attracted by it, and one gathers the impression that nearly everybody seems to suffer from it. This, however, is far from correct, and the less conspicuous *Tinea corporis tropicalis* is much more prevalent. Forty-eight cases of *Tinea imbricata* were found in the group, as against 152 cases of *Tinea corporis tropicalis*.

Tinea alba is very common, as in Samoa, where it is known as *Tane*. This form of ringworm, however, causes practically no irritation, and the Natives consequently do not seek treatment, although the white, floury patches it produces are very disfiguring on a dark skin.

The treatment adopted for *Tinea imbricata* and *Tinea corporis tropicalis* was as follows: A strong tincture of iodine was first painted over the affected parts. If much of the body was affected, a portion was painted every day until all was treated. When the skin peeled Ung. Chrysarobini (4 per cent.) was rubbed in every second day. This rapidly cleared up cases of *Tinea corporis tropicalis*, *Tinea imbricata* proving more intractable. However, on leaving the group very little ringworm was showing, and a supply of iodine and Ung. Chrysarobini was left behind for the dresser-boys to continue treatment. Recurrence as soon as the treatment is ceased is the difficulty with *Tinea imbricata*, and the dresser-boys were instructed to keep treatment going to try to prevent recurrence, instead of ceasing treatment when the skin is clean and waiting to see if it will recur. Thus when the skin was clean they were to apply the ointment twice a week for a month, and then once a week for a second month, at once resuming frequent application at the first sign of any recurrence.

No effects of absorption, such as nephritis, were seen after twelve days' treatment with the ointment, but warnings were given for the possibility of this occurring, and, if so, to cease treatment forthwith.

Sulphur fumigation as a treatment for *Tinea imbricata* was not adopted on this trip. A sulphur-box is in existence at Atafu, and the Native medical practitioner showed me two cases of complete cure he had effected by its use after a daily exposure of twenty minutes for six months. No boat had been to the island for ten months prior to my visit, and of course the sulphur was finished, as well as most of the other medical stores. A supply of sulphur was promised him with which to continue treatment, as it is probably the safest method for cases where practically all the skin of the body is involved, whereas iodine and Ung. Chrysarobini may be more effective and quicker in action in mild cases. The trouble with all Natives is to get them to persist with any form of treatment, especially when they are not under the control of a white man. To sit in a sulphur-box daily for six months to cure a ringworm, of which he is possibly a little proud, is perhaps asking too much of a Native.

There is certainly room for further investigation to devise a safe, quick method of treating *Tinea imbricata*—a method that will not be too expensive to carry out on a large scale.

YAWS.

Yaws is not prevalent. Only sixty cases were seen in the group, and these for the most part were "crab" yaws of the late secondary stage. One primary sore was seen and one mild secondary rash. Two "sabre" tibiae, two cases of tenosynovitis of the wrist (of possible yaws origin), and ten tertiary ulcers were also seen. It is hard to understand why there should be so little yaws, when in Samoa a few years ago, before active Novarsenobillon treatment was inaugurated, nearly every second child was covered with a secondary rash. I could not ascertain from the Tokelau people any time when yaws had been prevalent. It seems as though yaws may be largely a fly-borne disease, for in the village islets of the Tokelau hardly a fly is to be seen. Novarsenobillon injections were given to every case of yaws seen in the group.

FILARIASIS.

This is not common, owing to the absence of mosquitoes in the village islets. Fifteen cases of elephantiasis were seen, mostly of the limbs, there being but one case of elephantiasis of the scrotum. A few hydroceles were seen, probably of filarial origin. Elephantoid fever and muscle-abscesses are rare.

TUBERCULOSIS.

This scourge, which is universal throughout the Pacific, does not seem to be unduly prevalent here. Two cases of advanced pulmonary phthisis were seen on Atafu, where there seems to be more tuberculosis than in the rest of the group. Eight cases of tuberculous glands in the neck were seen, and two old cases of Pott's disease of the spine. Segregation of all cases of tuberculosis is carried out on Atafu, the patients being kept on one of the neighbouring islets. Throughout the group a change of air to the windward side of the atoll during convalescence after any illness seems to be a universal practice.

INTESTINAL PARASITES.

Ascaris is seemingly unknown. *Oxyuris vermicularis* is not common, and no marked clinical evidence could be found of Hookworm.

LEPROSY.

No case of leprosy was seen.

EYE-DISEASES.

No severe epidemics of conjunctivitis appear to have occurred in these islands in recent years, at any rate not to the same extent as in Samoa. Staphylomata, so common in Samoa, are not to be seen. A few opacities of the cornea, and one case of cataract, and two cases of pterygium were the only eye troubles come across.

INFANTILE MORTALITY.

This is large. Every married woman was questioned as to the number of children she had had, and the number that had died. I found that out of 848 children born to 191 women, 278 had died. This gives a roughly estimated mortality of one in three, although not all these died in infancy. The greatest mortality undoubtedly occurs during the first year, and it is very large during the first week. On asking the mothers what their children had died of, I found that in the majority of cases death was attributed to a disease known locally as *mumu*. This, they told me, was characterized by high fever and a red blush all over the body, and was frequently rapidly fatal. I was shown only one case, and that was a child two weeks old suffering from Pemphigus neonatorum. This, they said, was one form of *mumu*. Dr. F. W. O'Connor, in his "Researches in the Western Pacific," page 28, mentions this *mumu* as occurring in the Ellice Islands, and states that it nearly always ends in an outbreak of yaws. I could find no connection between *mumu* and yaws in the Tokelau Islands.

Apia, Western Samoa, July, 1926.

APPENDIX C.

A CASE OF RUPTURED ECTOPIC GESTATION.

By W. C. MacKNIGHT, M.B., C.M., F.R.C.S. (Edin.).

OP. case 185: A Samoan woman, aged thirty years, was admitted in the evening suffering from severe abdominal pain and collapse. A ruptured ectopic gestation was diagnosed, and she was operated on shortly after admission.

The abdomen was found to be full of blood. The bleed-point was found at the middle of the left fallopian tube, where there was a small empty sac. This was excised, and the cut-ends united and covered with peritoneum. Some adhesions, evidence of old inflammation, were found on the right side of uterus. The abdominal wall was closed in layers.

Patient stood the operation well in spite of the great loss of blood and the shock, and made a rapid recovery.

OP. CASE 81: STREPTOCOCCIC INFECTION OF KNEE-JOINT; LYMPHO-SARCOMA OF SMALL INTESTINE.

By W. C. MacKNIGHT, M.B., C.M., F.R.C.S. (Edin.).

Samoa, male, aged forty-three years. Patient was admitted suffering great pain from a distended knee. Aspiration showed the contents to be purulent fluid loaded with streptococci. The condition was probably originally filarial.

The knee was drained by two tubes passing down to but not into the synovial sac—the end being stitched to the capsule of the joint. This method of treating suppurating joints, which we owe to Willems, the Dutch surgeon, has proved most satisfactory in all cases in which I have used it. In the present instance the patient made a rapid recovery with full and perfect movements of joint.

Three months later he was admitted to hospital with a history of a swelling in left lower abdominal quadrant of two months' duration—no constipation, no loss of flesh.

At operation the growth was found to be in the lower end of ileum, involving the whole circumference of bowel. The growth was excised with 2 in. of healthy bowel on each side. The bowel-ends were joined by end-to-end anastomosis. The patient made a rapid recovery and put on weight. Unfortunately, he died about four months later of cardiac failure following a series of muscle-abscesses, probably filarial in origin. He had no sign of recurrence of growth and no abdominal discomfort.

The growth was reported on by the pathologist, University of Otago, N.Z., who classed it as a sarcoma-lympho-type.

SIMULATION OF INTESTINAL TUMOUR BY MASSES OF ASCARIDES.

By W. C. MacKNIGHT, M.B., C.M., F.R.C.S. (Edin.).

A Samoan female child aged two years was admitted to the hospital at 9 p.m. on 23rd January. Her parents stated that she was in good health until the day of admission, when her bowels moved three times at intervals of an hour, and that she vomited at 6 p.m. and 7 p.m.

Examination showed a fairly healthy child. Temp. 99° F.; pulse, 80; resp., 20; no evidence of pain. There was a sausage-shaped tumour in upper abdomen, extending from above and to the left of umbilicus, across abdomen, and down to region of cæcum. There was another smaller mass in right lower abdomen. Examination per rectum showed no ballooning, no hæmorrhage. The lower mass could be felt. The sausage-shaped tumour, diarrhœa, and vomiting suggested intussusception, but the absence of pain, hæmorrhage, and the general condition of the patient negated this.

On the following day the masses had disappeared, leaving only small hard knots. Next day these had disappeared, and the child appeared quite well, but passed two round worms (*Ascaris lumbricoides*). She was treated with Santonin, and from 25th January to 9th February she passed altogether 131 round worms.

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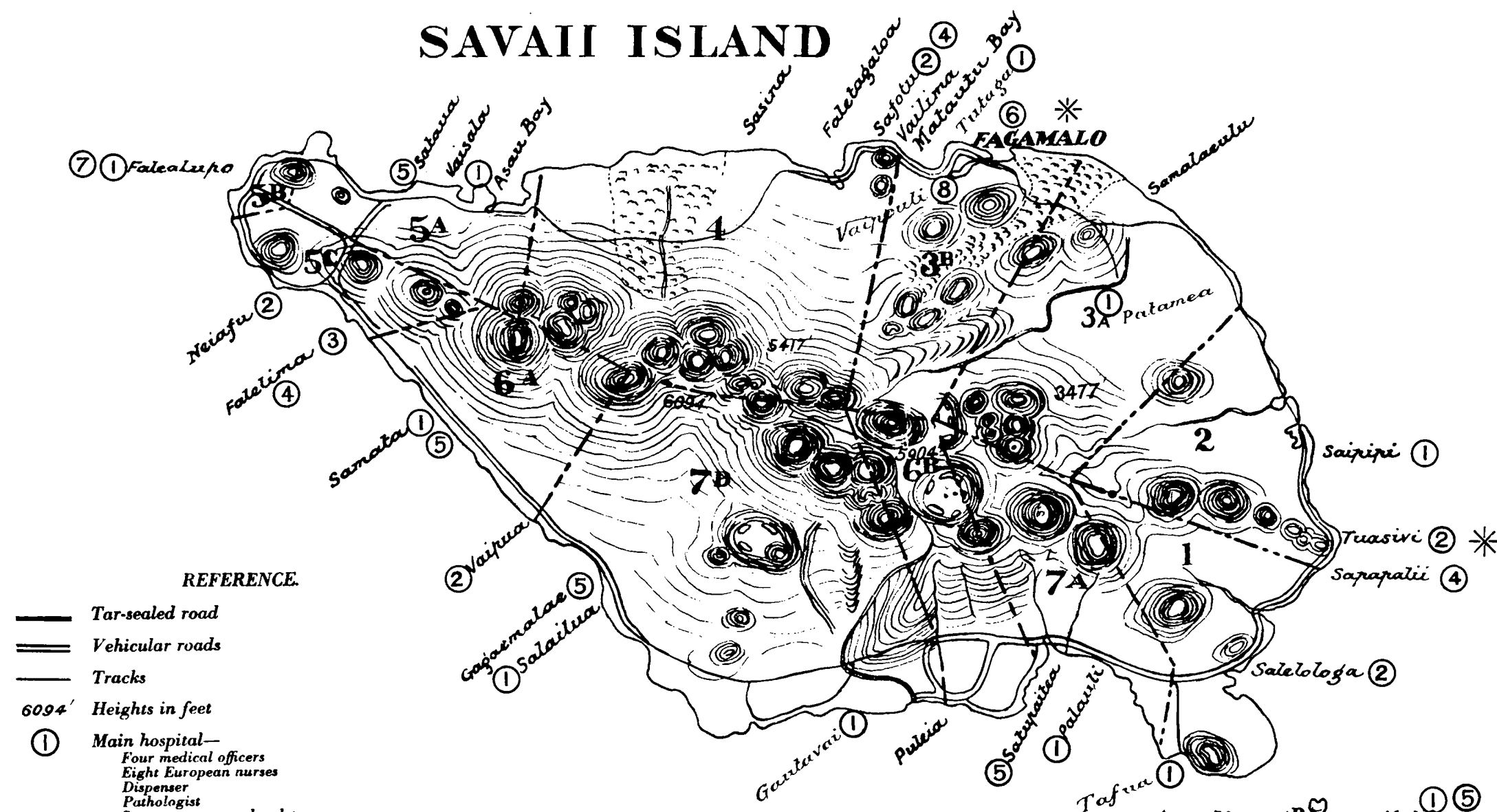
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True North



REFERENCE.

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- Vehicular roads
- Tracks

6094' Heights in feet

- ① Main hospital—
Four medical officers
Eight European nurses
Dispenser
Pathologist
Samoan nurses and cadets
- ② District hospitals—
One medical officer
Two Samoan nurses
One interpreter
- ③ European nurse and dispensary
- ④ Native medical practitioner
Native nurse and dispensary
- ⑤ Mission station dispensary
One Samoan nurse
- ⑥ Child welfare nurse
- ⑦ Mission station dispensary
- ⑧ Government schools, European teachers
- ⑨ Government schools, Native teachers
- ⑩ Government training-school

SECOND-GRADE NATIVE SCHOOLS.

- ① London Missionary Society
- ② Methodist "
- ③ Mormon "
- ④ L.M.S. training-schools

* Wireless stations

AGRICULTURAL DISTRICTS.

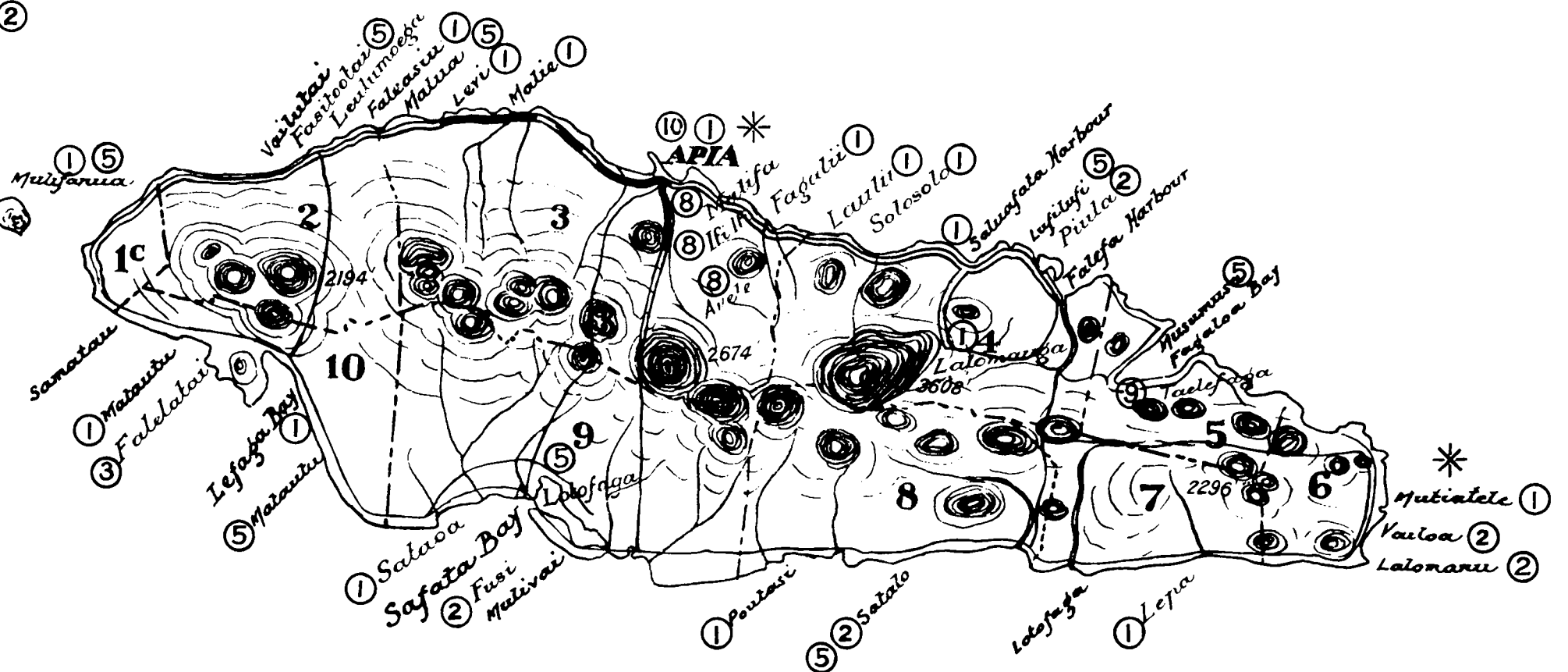
UPOLU.

- 1. Aiga-i-le-tai.
- 1^A. Manono.
- 1^B. Apolima.
- 1^C. Mulifanua.
- 2. Aana North.
- 3. Tuamasaga North.
- 4. Itu Anoamaa.
- 5. Vaa o Fonoti.
- 6. Aleipata.
- 7. Lepa ma Lotofaga.
- 8. Falealili.
- 9. Tuamasaga South.
- 10. Aana South.

SAVAII.

- 1. Faasaleleaga South.
- 2. Faasaleleaga North.
- 3^A. Lealatele.
- 3^B. Saleaula.
- 4. Gagoifomauga.
- 5^A. Vaisigano.
- 5^B. Falealupo.
- 5^C. Alataua.
- 6^A. Salega.
- 6^B. Satupaitea.
- 7^A. Palauli East.
- 7^B. Palauli West.

Apolima 1^B
Manono
Salua ① ⑤
Faleu ②



①

③

⑤

⑦

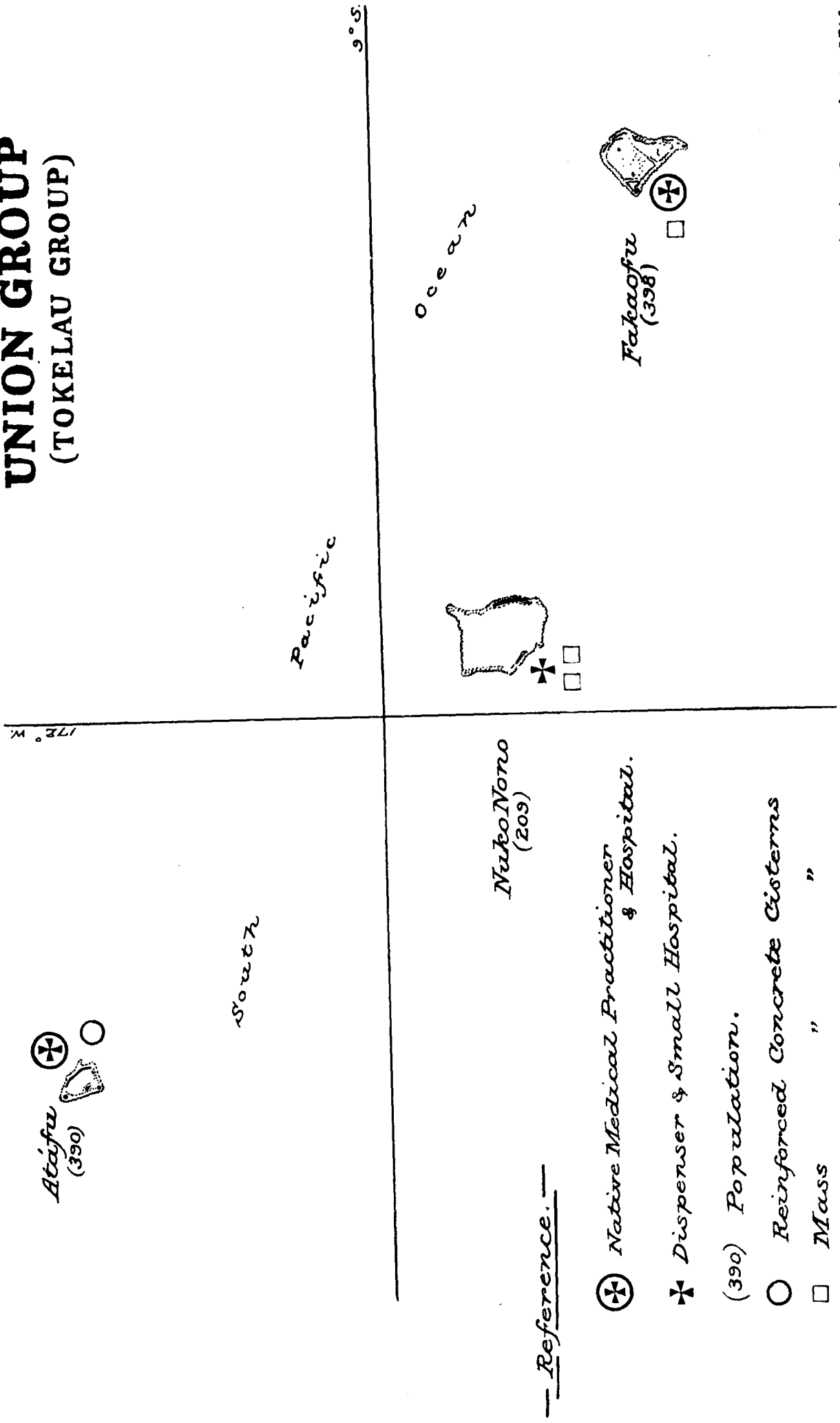
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UNION GROUP (TOKELAU GROUP)



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